

## ABSTRACT OF DISCLOSURE

A method of attaching a first member of one of quartz and a ceramic to a metal member. The method includes creating a hole in the metal member, the hole being smaller in size than the size of the first member over a temperature range, heating the metal member to a temperature sufficient to expand the hole to allow insertion of the first member in the hole, inserting a portion of the first member into the hole, and cooling the metal member to form a joined structure of the first member and the metal member.